
Training Health Professionals and Lay Volunteers to Deliver Cholesterol Screening and Education Programs

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Synopsis

The National Heart, Lung, and Blood Institute of the National Institutes of Health launched the National Cholesterol Education Program (NCEP) in 1985. With the goal of reducing the prevalence of elevated blood cholesterol in the United States, the NCEP aims to

raise awareness and understanding in both health professionals and the general public of high blood cholesterol levels as a risk factor for coronary heart disease. Public interest in blood cholesterol measurement has created an enormous market for cholesterol screening and education programs. The importance of quality screening and educational services was recognized by the NCEP, which has urged the training of all personnel involved in public cholesterol screenings. This paper presents models for training lay volunteers and health professionals to deliver quality public screening programs for high blood cholesterol that are consistent with NCEP recommendations.

Blood cholesterol screening, counseling, and referral (SCORE) programs are key intervention strategies of the Pawtucket Heart Health Program (PHHP), a cardiovascular disease prevention research program in Pawtucket, RI. This paper describes the PHHP volunteer training and certification program for cholesterol SCOREs and the demographics of screening volunteers.

With the goal of improving the quality of cholesterol screening and education programs nationally, the Cholesterol Training Center (CTC) was established in 1988. Using models established by PHHP, the center developed training workshops to help health professionals initiate, update, expand, or enhance training for cholesterol screening and education programs. CTC training protocols and the characteristics of workshop participants are described, and the workshops' effects on participants' knowledge and self-sufficiency are discussed.

CORONARY HEART DISEASE (CHD) is the leading cause of death in the United States (1). High levels of blood cholesterol have been established as an important risk factor for CHD (2-4). In 1984, the National Institutes of Health (NIH) convened a Consensus Development Conference on Lowering Blood Cholesterol to Prevent Heart Disease (2). This panel recommended screening all adults for high blood cholesterol and treating those with elevated levels. In addition, the panel recommended the National Heart, Lung, and Blood Institute (NHLBI) initiate the National Cholesterol Education Program (NCEP) to reduce the prevalence of high blood cholesterol in the United States by educating health professionals and the public (5).

Since the NCEP got underway in 1985, a series of

national surveys have monitored the progress of public education efforts such as the "Know Your Cholesterol" campaign. In 1983, a baseline survey indicated that 35 percent of those surveyed nationally had had their blood cholesterol level checked, and 3 percent actually said they knew their number (6). In 1988, 59 percent of those surveyed had had their blood cholesterol level checked, and 17 percent knew their number (7).

The Behavioral Risk Factor Surveillance System also monitored cholesterol awareness and testing in 33 participating States in 1987. The proportion of adults in each State who reported having had their cholesterol tested ranged from 29 percent to 57 percent, with a median of 47 percent (8). The percentage was very different when individual States were compared, possibly

reflecting the regulatory climate or different emphases on cholesterol screening in different States. Nevertheless, these results, in combination with the NHLBI surveys, reflect the growing demand for information and testing. A draft of the Year 2000 Health Objectives for the Nation includes aggressive plans to influence blood cholesterol levels nationwide. One cholesterol-related objective aims to increase the percentage of adults having their blood cholesterol level checked from 59 to at least 90 within the next decade (9).

Public interest has created an enormous market for cholesterol screening and education services. The most recent national recommendations that impact on cholesterol screening of the general population were released in February 1990 as part of the NCEP Expert Panel Report on Population Strategies for Blood Cholesterol Reduction (10). The panel concluded that under specific conditions, public screening for blood cholesterol is appropriate as a supplement to screening in the health care setting.

As national policy directives continue to build on the momentum that presently drives public cholesterol screening and education programs, careful attention must be paid to the quality of services provided. Accurate and reliable blood cholesterol measurement results, combined with effective educational messages that can assist people in reaching or maintaining desirable blood cholesterol levels, are crucial. The Office of the Inspector General of the Department of Health and Human Services recently published a report which highlighted some of the major problems associated with poor quality public screening programs (11). Criteria used by the Inspector General to evaluate screening programs were drawn from a June 1989 report published by the NCEP (12). This report compiled recommendations from leading experts on recruitment strategies, analyzer operation, quality control, participant education, screening environment, referral and followup, and staff training.

With regard to staff training, experts agreed that health professionals were not required for many screening tasks and that staff members at public screening centers "should have training appropriate to their responsibilities" (12). The June 1989 report also gave general training recommendations as they relate to blood drawers, instrument operators, and staff members providing educational information and went a step further than previous NCEP reports (13, 14) to describe who should provide training programs. The report emphasized that screening staff members "should be taught by health professionals with experience in the detection, measurement, and management of high blood cholesterol."

While national policy makers more recently have emphasized the need for training, and many States are

beginning to establish training programs appropriate to the providers in their areas, there is little in the literature concerning provider training programs. The quality of cholesterol screening programs depends on the course content, requirements for trainee-providers, evaluation tools, and other issues. A primary purpose of this article is to describe the training and certification programs conducted at the Pawtucket Heart Health Program (PHHP) from August 1984 through August 1989 which may be helpful to those currently developing training initiatives. This overview will include detailed information about protocols, procedures, and certification requirements of PHHP's cholesterol training program as well as a profile of volunteers who are critical to the delivery of these services.

We will also describe the context, methods, and resources of training workshops for health professionals conducted by the Cholesterol Training Center (CTC), a separately supported dissemination activity of the PHHP. Finally, the implications of these two training models will be discussed in light of Federal and State initiatives to improve the quality of public screening for high blood cholesterol levels nationwide.

Training Volunteers

Pawucket heart health program. The PHHP, one of three community intervention research and demonstration trials aimed at reducing cardiovascular disease (CVD) morbidity and mortality, has been actively involved in developing and implementing model cholesterol screening and education programs since 1984. Using a community activation approach that mobilizes a lay volunteer delivery system, PHHP is testing a model for changing individual, organizational, group, and finally community risk factor profiles to reduce risk, and ultimately, CVD morbidity and mortality (15-17).

Intervention and evaluation are the two main organizational units within PHHP. The intervention unit is responsible for designing and delivering risk reduction programs that address physical inactivity, smoking, obesity, high blood pressure, and blood cholesterol levels (18, 19). The complexity of the PHHP intervention design necessitated the development of a comprehensive evaluation system to assess both outcome and process (20, 21). Measurement of distal outcomes (that is, CVD morbidity and mortality rates) as well as formative and process evaluation mechanisms are described elsewhere (20-22).

When the intervention component of PHHP's research and demonstration study began, lay volunteers were actively recruited to take part in all aspects of program planning, implementation, and evaluation. More than 2,500 volunteers have given nearly 75,000 hours of service toward changing behavior since then (22).

Table 1. Pawtucket Heart Health Program training and certification requirements for cholesterol SCOREs

<i>Station</i>	<i>Class attendance</i>	<i>Written quiz</i>	<i>Skill test</i>	<i>Field competency</i>	<i>1 year recertification requirements</i>
Registration and intake.....	1 1-hr.session	90 percent proficiency	Role play according to checklist with 100 percent proficiency	Observed at SCORE	Observed at SCORE
Cholesterol measurement....	1 2-hr. session	90 percent proficiency	5 measurements according to checklist with 100 percent proficiency	5 measurements at SCORE with 100 percent proficiency	1 measurement on trainer with 100 percent proficiency 3 measurements on participants with 100 percent proficiency
Summary and referral.....	2 2-hr. sessions	90 percent proficiency	1 role play according to checklist with 100 percent proficiency	Trainee observes for ½ hour prior to counseling 2 supervised sessions at SCORE with 100 percent proficiency	2 supervised counseling sessions with 100 percent proficiency

Volunteers played an important role when PHHP began a community-wide cholesterol-lowering initiative in 1984 (23). A primary feature of this initiative centered on cholesterol screening, counseling, and referral events (SCOREs). As of August 1989, PHHP has offered more than 1,600 SCORE programs reaching more than 40,000 people. Participants in a cholesterol SCORE move progressively through three separate stations: registration and intake, cholesterol measurement, and summary and referral. More complete descriptions of the PHHP "Know Your Cholesterol" campaign (23), as well as characteristics of SCORE participants (24), followup and referral data (25), physician referral and treatment (26), worksite-based programs (27), and the impact of these programs on physician behavior (28) are available. All volunteers who work at cholesterol SCOREs in Pawtucket participate in extensive training and certification programs prior to their field placement.

Volunteer pool. A detailed description of PHHP's volunteer recruitment and delivery system has appeared in the literature (29). Briefly, volunteers are recruited for 1 of 18 job descriptions within several major categories of work: office staff (typing, filing, research assistant, and so forth); program assistant (help coordinate community-wide campaigns or special events); or group leader (behavior change program leaders for smoking cessation, weight loss, exercise). In addition, certain

volunteers are recruited to work as screening assistants to measure blood pressure, height and weight, blood cholesterol, and carbon monoxide in expired air. Each PHHP volunteer is required to complete a standardized registration form during an orientation session. The information on the volunteers is also compiled by PHHP's formative and process evaluation unit. As the numbers, roles, and hours of volunteers expanded over the years, this information was entered in the program's computer system and the PHHP Volunteer Registry was developed. Beginning in 1986, a more detailed registration form was used to identify years of schooling, job preferences, work-specific skills, and so on. The volunteer registry allows PHHP to obtain periodic reports about the volunteer pool and establishes a system for managing the volunteer network (29).

Our focus in this paper will be on volunteers who chose to work at one or more of the three stations of a cholesterol SCORE—registration and intake, cholesterol measurement, and summary and referral. Each SCORE volunteer is required to complete the PHHP-sponsored training and certification program. Seventy-nine percent of the 91 volunteers who completed the training and certification process for the cholesterol measurement station were women, and 47 percent were younger than 30 years of age. Similarly, 86 percent of the 138 summary and referral station certified volunteers were women, and 44 percent were younger than 30.

Learning Objectives for Classroom Training

Registration and Intake

1. Explain what a SCORE¹ is.
2. Understand the function of each SCORE station: Registration and Intake, Cholesterol Measurement, Summary and Referral.
3. Demonstrate correct protocol for the Registration and Intake Station:

- Greet the participant
- Review Cholesterol Test Clearance questions, intake form and "Rate Your Plate" questionnaire
- Ask and indicate on form how participant heard about the SCORE
- Describe briefly each SCORE station
- Collect fee and mark "paid" on intake form
- Measure and record height and weight

4. Understand the volunteer agreement and certification-recertification requirements.

Cholesterol Measurement

1. Understand what a SCORE is and the importance of cholesterol SCOREs.

2. Understand what the cholesterol measurement station of a SCORE includes.

3. Learn the adult and youth guidelines for blood cholesterol levels used in cholesterol SCOREs.

4. Be familiar with various methods and types of equipment used to measure cholesterol levels.

5. Draw blood sample using the fingerstick protocol.

6. Measure total blood cholesterol using the Reflotron analyzer.

7. Safely store, handle and/or dispose of blood and other waste products at the measurement station.

8. Demonstrate on-site SCORE quality control techniques essential to accurate and precise cholesterol measurements.

9. Understand importance of the oath of confidentiality.
10. Understand the volunteer agreement and certification-recertification requirements.

Summary and Referral

1. Understand what a SCORE is and the importance of cholesterol SCOREs.

2. Understand that the summary and referral station of a SCORE includes four components: risk factor counseling, blood cholesterol level discussion, review of eating pattern self-assessment using "Rate Your Plate," and final summary.

3. Discuss the participants' heart disease risk factors.

4. Review participants' blood cholesterol results, identify risk category, and make appropriate recommendations or referrals.

5. Discuss the definition of a desirable blood cholesterol level.

6. Explain that blood cholesterol levels are related to heredity, diet, age, and body weight.

7. Define dietary cholesterol, saturated fat, and unsaturated fat, and discuss role of each in managing blood cholesterol.

8. Identify food sources high in cholesterol, saturated fat, and unsaturated fat.

9. Discuss "Rate Your Plate" responses, prioritize and suggest alternative food choices according to the eating pattern guidelines.

10. Assist participants in choosing one short-term eating pattern change and two other changes that can help lower risk for heart disease.

11. Follow the summary and referral station checklist.

12. Demonstrate appropriate counseling skills.

13. Understand oath of confidentiality.

14. Understand the volunteer agreement and certification-recertification requirements.

¹SCORE = (blood cholesterol) screening, counseling, and referral event.

Training program description. The requirements for certification and recertification of PPHP-trained volunteers are shown in table 1, and the learning objectives for classroom training are presented in the accompanying box. All SCORE volunteers are required to complete a 1-hour training session for the registration and intake station. This training prepares SCORE volunteers to greet participants, explain how to complete the intake form, the consent form, and "Rate Your Plate" dietary assessment tool, as well as how to collect the fee, regulate participant flow, measure height and weight, and answer many of the typical initial questions that arise at a cholesterol SCORE. Maintaining confidentiality and integrity of the data, regulating participant flow, and good customer relations skills are a few reasons why all SCORE volunteers must complete registration and intake station training.

The training for the cholesterol measurement station includes a description of the factors that influence blood cholesterol levels, instruction and skill development on fingerstick blood collecting and on using a portable desktop analyzer. From 1984 to 1985 staff members and volunteers were trained to operate the Kodak DT-60 for public screening programs. From 1986 to the present, the Boehringer Mannheim Diagnostics Reflotron has been the desktop analyzer in use during field screening events. Performance characteristics of both analyzers are described in the literature and meet current NCEP recommendations for accuracy and precision (30–32).

Practice time and skill testing with standardized checklist protocols are incorporated into the initial classroom training session. Protocols for recognizing potential sources of error, accidental needle injuries,

safe handling and disposal of blood products, infection control, and medical emergency care are also explained. Training emphasizes the importance of adhering to established quality control procedures. PHHP has established a comprehensive quality assurance program with guidance from a Centers for Disease Control standardized lipid laboratory located at the Miriam Hospital in Providence, RI. Both external and day to day quality control procedures are conducted by PHHP staff members. During cholesterol measurement training, a written quiz, skill checkout form, and proficiency test in field conditions are completed prior to final certification as a cholesterol measurement technician. The entire training process is generally consistent with the one-day minimum training recommendations established by the NCEP (12).

At summary and referral, the third and final station of a SCORE, participants learn the results of their blood cholesterol test and are advised how to maintain (or begin some changes to achieve) a desirable blood cholesterol level. Training for summary and referral station volunteers includes an overview of key nutritional factors that influence blood cholesterol levels, an emphasis on the multiple risk factor approach to CVD risk reduction, and adherence to the NCEP Public Screening Guidelines for cholesterol referral and followup (12). Volunteers learn and demonstrate a four-step 10-minute counseling protocol, (a) risk factor assessment, (b) cholesterol level summary and referral, (c) "Rate Your Plate" review and recommendations, and (d) final summary. Consistent with all training sessions, behavioral checklists are used to assess skill, and written tests are used to determine knowledge competencies for the summary and referral station. Field observation and practice sessions are required. Certification is completed only when all three sets of criteria—knowledge, skill, and field proficiencies—are met. Again, the time required for completing this process is generally consistent with the minimum one-day training recommended by the NCEP (12).

Although paid professional staff members primarily manage cholesterol SCORE events, a few volunteers have been trained and certified as SCORE site supervisors. This level of training includes required certification for all three SCORE stations, extensive experience in field conditions, and additional training in logistics, instrument troubleshooting, minor medical emergencies, and maintenance. Furthermore, the site supervisor also receives training in on-site quality control procedures according to NCEP recommendations (12). Site supervisors, responsible for keeping quality control records in the field, work with PHHP staff members to monitor all quality assurance standards. In addition, site supervisors monitor SCORE volunteer technique, identify persons who require update sessions, and assist

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with re-certification procedures. Most training at the site supervisor level is conducted on a highly individualized, one-to-one basis.

Training results. From August 1984 through August 1989, a total of 369 people were trained to work in one or more stations of a cholesterol SCORE (table 2). All SCORE volunteers complete registration and intake station training as a prerequisite to any other training options. Cholesterol SCORE volunteers represent approximately 13 percent of the entire volunteer population of 2,500 at PHHP. A total of 229 volunteers (62.1 percent) completed the certification process. Specifically, 142 volunteers attended cholesterol measurement technician training, and 91 (64.1 percent) completed the certification process. Certified measurement technicians who worked in the field averaged 27.4 hours of work over the 5-year study period. Of the 227 volunteers who attended summary and referral station training, 138 (60.1 percent) completed the certification process, and they worked an average of 18.8 hours over the study period. Of the 185 who actually worked in the field, 126 were unique in that they did not work more than one SCORE station. Therefore, 68.1 percent of all trained and certified volunteers actually worked in the field.

Training Health Professionals

Cholesterol training center. Established in 1988, the Cholesterol Training Center (CTC) modified and adapted many of the training protocols established by PHHP for a nationwide audience of health professionals.

Training potential. The CTC serves health professionals who want to initiate a cholesterol control program or update, expand, or enhance an existing program. State health departments are actively recruited as co-sponsors for these workshops. Physicians, nurses, dietitians, health educators, exercise specialists, laboratory technicians, private screening service owners, and other State or local public health officials are prime audiences for these training workshops. The diverse

Table 2. Volunteers trained at the Pawtucket Heart Health Program, August 1984 to August 1989

Type of training	Number trained ¹	Number certified	Percent certified	Worked in field	Hours worked ²	Average hours
Cholesterol measurement . . .	142	91	64.1	80	2,195	27.4
Summary and referral	227	138	60.1	105	1,976	18.8
Totals	369	229	62.1	185	4,171	23.1

¹All receive registration and intake training. ²Certified volunteers only.

backgrounds of health professionals attracted to this workshop have required CTC faculty members to tailor details of each workshop to participants' needs identified by sponsoring agencies.

Training program description. Four different courses have been developed and implemented, but the primary focus of this paper is on the 2-day workshop entitled "Design and Management of Cholesterol Control Programs." This workshop serves program managers, administrators, and other professionals responsible for planning, delivering, and evaluating cholesterol control programs. An overview of high blood cholesterol levels as a public health threat provides an update on Federal initiatives and presents data that support the need for high-quality cholesterol screening and education programs. An interactive, strategy-building session on working with the medical community is followed by general sessions on management issues, marketing strategies, logistics, and medicolegal issues.

Participants in this workshop are also introduced to protocols established by PHHP for all three stations of a cholesterol SCORE. A blend of lecture, hands-on practice, videotape demonstrations, and other methodologies consistent with adult learning theories are employed as teaching techniques. Participants receive the training guides, checklist protocols, and the rationale behind these approaches. All training materials and information are consistent with the most current recommendations for a public screening program outlined by the NCEP (12).

Several tools are employed to evaluate this course. Workshop registrants rate individual trainers, program content, teaching methods, and audiovisuals on a standardized evaluation form. They also indicate what they found most and least useful about the workshop. In addition, CTC begins each workshop with a 30-item multiple choice pretest. Individual scores are matched by unique identifiers at workshop completion with a post-test. An additional five questions require participants to rate their preparedness to perform the following: conduct a SCORE, accurately measure cholesterol using fingerstick technology and a portable analyzer, address quality control issues, summarize cholesterol results and make appropriate referrals, and follow up

initial and re-screens according to established protocols. A five-point Likert Scale (strongly agree-1 to strongly disagree-5) is used to rate individual preparedness. Aggregate test results are compared by analyzing mean pre- and post-test scores.

The design and management course, which is a prerequisite for all other CTC workshops, allows managers to familiarize themselves with the knowledge, skills, and techniques required to deliver high-quality services but does not provide participants with the technical training required to actually perform these skills at a screening event. For example, all workshop participants become familiar with the operation of the Reflotron, yet the training information provided is applicable generally to other commonly used desktop analyzers.

CTC has developed 1-day intensive training workshops on cholesterol measurement and summary and referral for persons who actually perform these functions at a screening event. Participants at these 1-day workshops spend a great deal of time practicing skills and demonstrating proficiency. Similar to people who attend PHHP's training modules for volunteers, participants at these 1-day courses complete knowledge and skill tests. Field experience may also be arranged by conducting "mock" SCOREs. CTC and the sponsoring agency often work together to arrange field experiences that best simulate the screening environment. A manager who attends the introductory course is eligible to attend 1-day skills-training workshops or to send a representative from his or her agency.

Another course option is the "SCORE . . . For a Healthy Heart Trainers Course." This 2 1/2-day course reviews all issues relative to cholesterol measurement, quality control, and summary and referral and gives each participant skills and practice time to present this information in a training environment. By completing the trainers course, a participant is prepared to train members of his or her organization in the use of established protocols for each of three cholesterol SCORE stations. CTC also has customized training workshops at the request of individual clients.

Training results. Between May 1988 and August 1989, CTC conducted 23 workshops for 359 registrants in 15 States across the country. More than half of these

workshops were co-sponsored by State health departments. Five of the 23 workshops were customized for the needs of a particular client, and the remaining 18 were the standardized 2-day course. Results from these 18 workshops follow. Of the 294 registrants, 265 (90 percent) completed a pretest and post-test for the 2-day course. The tests were matched by unique identifiers. All pretests that could not be matched by unique identifiers at post-test were excluded, as were pretest or post-test only scores. When participant scores from all 18 workshops were combined, a statistically significant mean difference between correct responses on matched pre-and post-test was found ($P < .001$). Collectively, the mean number of correct responses was 18.3 on the pretest and 25.2 on the post-test from a total of 30 possible correct responses. The five most frequently missed items on the post-test are summarized in the accompanying box.

In addition, a subsample of 160 of the workshop registrants were asked to rate their preparedness to perform key aspects of a cholesterol SCORE before and after attending the 2-day course (see chart). Overall, a higher percentage of workshop registrants felt more prepared at workshop completion, than before the workshop, to

- conduct a SCORE event (75 percent versus 25 percent);
- accurately measure cholesterol using fingerstick technique and a portable desktop analyzer (76.2 percent versus 36.9 percent);
- address quality control issues according to the NCEP Laboratory Standardization Panel guidelines (69.4 percent versus 24.4 percent);
- summarize results and make appropriate referral recommendations (89.4 percent versus 31.9 percent); and
- followup initial and rescreens according to established protocols (81.2 percent versus 25 percent).

Discussion

Two models for training persons—both lay volunteers and health professionals—have been described. First, we will discuss the data on PPHP volunteer training. The fact that only 13 percent of all PPHP volunteers choose to work at cholesterol SCOREs may be explained by a number of factors. SCORE training is time-consuming, complex, and more demanding than the training required for most other volunteer jobs at PPHP. Further, of the 18 available volunteer job descriptions, only 2 (11 percent) are related to cholesterol SCOREs.

Data from the PPHP Volunteer Registry indicate that most people who have completed training and certification programs for cholesterol SCOREs are women. (The overall pool of PPHP volunteers includes more

Most Frequently Missed Questions on the Cholesterol Training Center Post Test

All of the following increase total blood cholesterol levels except:

- a. pregnancy
- b. recent heart attack¹
- c. saturated fat
- d. winter months
- e. all of the above increase cholesterol

The normal percentage of variation in blood cholesterol levels on a diurnal (or day to day) basis is:

- a. 1–2
- b. 2–3¹
- c. 3–4
- d. 4–5
- e. none of the above

Guidelines are now available from the National Cholesterol Education Program on:

- a. adult treatment of high blood cholesterol
- b. treatment of high blood cholesterol in children and adults
- c. laboratory standardization of blood cholesterol measurements
- d. population dietary guidelines for lowering blood cholesterol
- e. a and c²
- f. all of the above

If a SCORE participant has an initial total blood cholesterol measurement categorized as borderline-high, what are the correct referral recommendations, according to NCEP guidelines?

- a. refer to a physician for a second total blood cholesterol measurement
- b. refer to a physician for a total lipid profile
- c. get second total blood cholesterol measured within 2 months
- d. get second total blood cholesterol measured within 12 months
- e. it depends on the number of other risk factors the participant has¹

Which of the following is not recommended for cholesterol screening consent and waiver forms:

- a. list of potential risks
- b. waiver of damages not holding agency responsible
- c. statement that a low cholesterol level is not a guarantee against heart disease
- d. statement that a result which is classified as high is not a diagnosis of high blood cholesterol
- e. all of the above are recommended¹

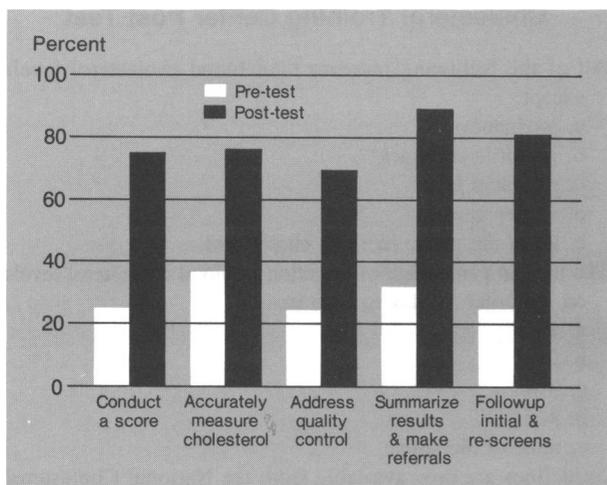
¹correct answer.

²correct answer as of Feb. 2, 1990; now a,c,d are correct.

NOTE: SCORE = (blood cholesterol) screening, counseling, and referral event. NCEP = National Cholesterol Education Program.

women than men). This finding is consistent with a 1988 Gallup Survey of households that contributed to charity which found that women respondents volunteered more hours weekly than did men respondents

Percentage of 160 workshop participants who feel prepared to perform specific SCORE tasks



(33). The relatively young age (30 and younger) of a majority of trained PHHP volunteers is probably a result of aggressive volunteer recruitment at local colleges, offering opportunities for internships, and course-related experiences to health education, nutrition, and nursing students.

Not all people who volunteer to work at cholesterol SCOREs are able to complete the training and certification process. Approximately 62 percent of those who volunteer do complete PHHP's certification process, which includes very specific knowledge, skill, and proficiency requirements. Although PHHP trainers work in special sessions with interested persons who may have difficulty with one or more certification requirements, some people who volunteer do not possess the skill or ability to complete the process. Some volunteers drop out of training when they fully understand the commitment involved. For example, all trained volunteers are asked to sign a volunteer agreement form that suggests they work one SCORE event per month. Of the approximately one-third who do not get certified, some may also be health professionals from local agencies who request training but do not wish to complete the PHHP certification process. A limited number of these people are trained annually. Record-keeping may also be problematic when analyzing certification data. Because the last step in certification occurs in field conditions, a small number of persons may have completed certification without this information reaching the volunteer registry. PHHP staff members are working to resolve this potential problem by streamlining individual records and using a case-management approach to follow volunteers through the training and certification process.

In addition, only 68.1 percent of volunteers who complete training and certification actually work in the

field. Again, some health professionals who complete the process may use the skills and information in their own setting—physician's office, pharmacy, walk-in clinic, and so on—but choose not to work for PHHP. Still others may be students or people who move away before completing any field work. This issue may require further investigation.

Certified cholesterol measurement station volunteers work a greater number of hours (27.4) on average than do certified volunteers in summary and referral (18.8). One plausible explanation for this difference is that the PHHP protocol for followup cholesterol SCOREs does not include a summary and referral station, therefore no summary and referral volunteers are scheduled to work followup screenings.

CTC has trained almost 300 health professionals nationwide. While matched pre- and post-test scores indicate statistically significant knowledge gains, workshop faculty members are continuing to look at ways to enhance the educational process. An analysis of the pre and post-test results that compares categories of responses may yield more specific areas which need improvement. For example, if questions which relate to NCEP Adult Treatment Panel (ATP) guidelines are routinely missed, more emphasis by faculty members in this section is warranted. With regard to the participant preparedness ratings, it is clear that important gains were made by those who completed the workshop.

These results also point out that 25–30 percent of workshop participants might be appropriate to target for more intensive, skill-building training sessions on one or more of the key SCORE tasks. While CTC now offers 1-day courses in cholesterol measurement and summary and referral, a need for intensive training in quality control has been identified. In fact, in the written evaluations participants often point out that the quality control section is one of the most useful sessions in the 2-day introductory course. Although much of this anecdotal information and written feedback from workshop participants is helpful, a more structured analysis to determine additional training needs is planned. A randomized followup telephone survey of workshop participants may yield results which help clarify present training needs and organize new opportunities in the future.

Implications for the Future

The use of certified volunteers in PHHP's cholesterol SCOREs has provided a staffing option that greatly extends the program's service potential. A comprehensive, deliberate, criterion-based training and certification program is the backbone of this effort. In addition, PHHP staff members and site supervisors monitor performance of certified volunteers in field settings,

provide periodic update sessions, and recertify qualified volunteers annually.

CTC offers workshops that include lecture, discussion, and methods for hands-on, practical skill development aimed at a national audience of health professionals. Feedback from formal written evaluations, combined with pre- and post-test knowledge scores, checklist protocols, and informal followup with registrants, have played a role in the evolution of both standardized and customized training workshops.

As more people become informed about the risk of high blood cholesterol levels and have their levels checked, an increasing need for high-quality cholesterol screening and education programs becomes evident. An estimated 60 million Americans, 36 percent of the total adult population, are considered candidates for medical advice and intervention based on the NCEP-ATP guidelines (34). The current medical care delivery system may be overwhelmed by these numbers. High quality cholesterol screening and education programs, like the blood pressure screening programs that preceded them, can augment testing in physician offices. In an era of limited staff and resources, trained volunteers multiply the effect program planners hope to achieve—but only when quality is maintained.

The NCEP, through several expert panel reports, has drawn attention to the importance of staff training to high quality cholesterol screening and education programs. Initiatives at the Federal and State levels to incorporate national guidelines into workable regulatory statements have been of prime concern in the past few years. Any State with a clinical lab licensing law has requirements which may be directed toward cholesterol screening. Many States have chosen to revise existing clinical laboratory regulations to include guidelines for public screening of high blood cholesterol. Still other States have written new regulations specific to public screening for high blood cholesterol. (See "One State's Approach to the Regulation of Cholesterol Screening" by John M. DeBoy on page 584). The Inspector General's report, released in 1990, indicated that only 16 States had any regulatory controls over public cholesterol screening (11).

The 1988 Clinical Laboratory Improvement Amendment (CLIA) (House Bill 5471) represents a Federal effort to standardize all clinical testing methodologies, including blood cholesterol measurements. In States where rules more specific and stringent than the 1988 CLIA govern testing, the State regulations will be upheld. Citizens for Public Action on Cholesterol, a grassroots nonprofit lobby group based in Washington, DC, has outlined a model for State statutes and regulations regarding screening separate from clinical laboratory laws (35). Many States are in the process of responding to Federal, State, and local concerns about

'As more people become informed about the risk of high blood cholesterol levels . . . an increasing need for high-quality cholesterol screening and education becomes evident. An estimated 60 million Americans . . . are considered candidates for medical advice and intervention . . .'

the regulation and monitoring of public cholesterol screening programs. Most Federal and State initiatives to regulate cholesterol screening address personnel and training issues.

Staff training is one key element which impacts on all aspects of high quality public screening programs for high blood cholesterol. Major objectives of a high quality cholesterol screening and program include: (a) providing accurate and reliable measurements of blood cholesterol levels; (b) educating all participants about diet, blood cholesterol, and heart disease, and (c) referring high-risk participants to physicians. Staff training is critical to ensure that these elements are in place.

The Pawtucket Heart Health Program and the Cholesterol Training Center have shared an approach for training health professionals and lay volunteers to deliver high quality cholesterol screening and education programs. Open dialogue at the national and State levels to share other training approaches is needed. Further research to determine the length of time needed to complete skill competencies, how to standardize knowledge tests, who to recruit to work at cholesterol screening and education programs, and the performance characteristics of volunteers versus health professionals who staff screening programs will add to these initial, important discussions. PHHP and CTC are currently doing research to further knowledge in these areas. As it has with high blood pressure screening and education programs, focused attention on blood cholesterol measurement training and education will improve the climate for cholesterol control programs offered in the future.

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Call for Papers for NCHS Records and Statistics Conference

The National Center for Health Statistics (NCHS) will hold the 23rd biennial Public Health Conference on Records and Statistics in Washington, DC, July 15-17, 1991. The focus will be the interaction between the Nation's health agenda for the coming decade and the health statistics that will be needed to plan and monitor public health programs.

NCHS has issued a call for papers, with abstracts due February 8, 1991. The conference serves as a major forum for advances in public health statistics. Preference will be given to completed research and to abstracts in which the results of research are described. Papers presented at the conference will be published in the proceedings.

Papers will be considered for presentation under three broad themes, data systems for the Nation's health agenda, assessment of community health, and new concepts for the decade of the 1990s.

Information and application forms are available from Nancy Hamilton, NCHS, 6525 Belcrest Rd., Room 1100, Hyattsville, MD, 20782; tel. (301) 436-7122.